Journal of Global Trends in Social Science

press

https://doi.org/10.70731/sjy4j429

Rivers as Media: Spatial Construction and Geopolitical Negotiation in China's Borderlands

Meng Wang [a], Mo Chen [a,*]

[a] School of New Media, Peking University, Beijing, China
[a] School of Computer Science, Peking University, Beijing, China

KEYWORDS

Cross-Border Rivers;
Civilization;
Borderlands;
International Communication

ABSTRACT

Rivers, through their interaction with humanity, have shaped human civilization. The political significance of rivers as boundaries has long been overshadowed by their practical uses and aesthetic values, receiving limited scholarly attention. Spanning China's east and west, the Erguna River in the northeast and the Irtysh River in Xinjiang serve as key border rivers. As border rivers, they share frontier attributes and symbolize the negotiation between natural order and political boundaries. Their differing roles, influenced by unique natural features and relational actors, create diverse spatial dynamics. Cross-border rivers mediate China's relationships with neighboring countries and subtly reshape global geopolitical patterns. This highlights their mediatory significance, capacity for spatial transformation, and nuanced relationships with human societies, neighboring countries, and the broader world.

Introduction: Rivers as Media

Throughout history, rivers have consistently played a vital role in shaping the rise and fall of civilizations (Smith, 2022). Early large-scale societies emerged and flourished along the basins of the Tigris-Euphrates, Indus, Nile, and Yellow Rivers. With the advancement of civilization, rivers increasingly demonstrated their powerful shaping forces and enduring influence, engaging in both overt and covert interactions with human society. These interactions created meaningful spaces that connect nature and humanity while fostering human exchanges. Such connections and interactions underscore the role of rivers as media. In recent years, scholars have sought to counterbalance the positivist logic prevalent in classical communication studies by reimagining the concept of media. They emphasize expanding the imaginative horizons of media understanding (Hu, 2019). The notion of "rivers as media" investigates the mediatory potential of rivers, positioning them within the dynamic processes of human societal development and the historical evolution of civilizations.

Historically, rivers have captivated humanity, showcasing their aesthetic value in global art, religion, and cultural landscapes. Yet, conflicts and confrontations along rivers persist. At territorial boundaries, rivers enable international cooperation and resource-sharing but also pose risks of disputes and wars. The dual characteristics of "segmentation and cohesion" and "boundaries and connections" define the ambivalent nature of border rivers, offering rich potential for communication

* Corresponding author. E-mail address: chenmoemail@126.com

Received 6 December 2024; Received in revised form 11 December 2024; Accepted 19 December 2024; Available online 30 April 2025.

research. The Erguna River in northeastern China and the Irtysh River in the northwest provide illustrative examples. These rivers cross China's borders, subtly influencing its relationships with neighboring countries. While both rivers serve as border waterways, their characteristics differ significantly. The Erguna River rises on the western slopes of the Greater Khingan Range and flows northward, forming the border between China and Russia. In contrast, the Irtysh River originates in Xinjiang, flows through Kazakhstan and Russia, and functions as an international river traversing the Eurasian continent (Yan, 2019). The shared borderland attributes and contrasting hydrological features of these rivers offer a robust foundation for comparative studies. Notably, while rivers such as the Lancang River have received considerable academic attention, the communicative roles of the Erguna and Irtysh Rivers remain underexplored. Investigating these rivers highlights the importance of addressing challenges in China's northeastern and northwestern borderlands and provides crucial insights into China's relationships with Central and Northern Asia.

This paper examines the Erguna River and Irtysh River, which represent China's northeastern and northwestern borderlands, respectively. By framing rivers as media, this study investigates the complex interplay between natural forces and human societies. It further explains how rivers shape civilizations, mediate relations, symbolize power, and ultimately influence human futures.

Research Method

This study employs a combination of the document analysis method and case analysis to examine the communicative roles of rivers in geopolitical and spatial constructions. By integrating these two complementary approaches, the research addresses both the theoretical and empirical dimensions of rivers as media. This methodological framework enables a comprehensive investigation, focusing on the dynamic interplay between natural forces, human activities, and geopolitical processes.

The document analysis method systematically organizes and examines existing materials to provide essential data and contextual information for this study (Bowen, 2009). This approach facilitates a comprehensive understanding of the role of rivers in geopolitical and spatial constructions, particularly their diverse interactions with human societies, from historical, geographical, and communication studies perspectives. The study draws on various types of documents, including historical treaties (e.g., the Treaty of Nerchinsk), hydrological records (e.g., Hydrology Records of Hulunbuir League), and scholarly works on borderland geopolitics and transboundary river governance. These sources offer rich foundational data for analyzing the characteristics of the Erguna and Irtysh Rivers. By employing the document analysis method, the study effectively extracts critical information from existing literature, providing necessary background and detailed support for the subsequent case analysis.

The case analysis method complements the theoretical insights by focusing on the Erguna and Irtysh Rivers as representative examples. These two rivers were selected due to their shared status as border rivers, as well as their distinct hydrological and geopolitical characteristics. The Erguna River, as a territorial boundary, serves as a site of cultural and political negotiation, while the Irtysh River, as a transboundary waterway, exemplifies the complexities of international cooperation and conflict. The case analysis delves into their unique interactions with natural forces and human interventions, providing a comparative perspective on their roles in spatial construction and geopolitical dynamics.

By integrating document analysis and case analysis, this study offers a comprehensive framework for understanding rivers as media. The combination of these methods not only bridges theoretical and empirical perspectives but also advances the study of rivers' communicative functions within geopolitical and spatial contexts.

Border Rivers: Negotiation Between Natural Order and Political Boundaries

The shared borderland attributes of the Erguna River and the Irtysh River provide a foundational basis for comparative studies. These rivers intersect as symbols of political significance in China's borderlands. Borderlands in China are both geographical and historical concepts (Ma, 2017). Examining these two rivers within the context of modern Chinese borderlands necessitates addressing the historical issues tied to China's borders. Politically, these rivers also represent considerations of power dynamics. Meanwhile, as natural forces, rivers inherently delineate order through their trajectories, although human interventions frequently alter this order. Border rivers thus reflect the negotiation between natural order and political boundaries, embodying the interaction between natural forces and human agency.

Rivers as Media: Theoretical and Analytical Foundations

Rivers, as natural entities, occupy a pivotal position at the intersection of material properties and social significance, embodying profound mediatory roles. These roles are evident not only in their function as physical boundaries and transportation corridors but also in their symbolic significance in power negotiations, cultural interactions, and geopolitical processes. Viewing rivers as media highlights their distinctive role in mediating the interaction between nature and human civilization, illustrating how their material attributes and symbolic values

connect people with the environment, nations with each other, and regions with the global context.

From the perspective of communication theory, McLuhan's concept of "the medium is the message" emphasizes that media do more than carry information; they fundamentally shape societal structures through their inherent forms and characteristics (McLuhan, 1994). Rivers, as media, transmit resources, information, and culture, while their material properties influence power dynamics and social relations. For example, a river's flow direction determines regional resource distribution, and its clarity as a natural boundary reinforces its symbolic significance in political demarcation. Harold Innis's theory of "the bias of communication" further expands this analysis (Innis, 1999). Rivers exhibit "spatial bias" by defining geographical order through physical boundaries and "temporal bias" by serving as vessels of cultural memory and regional identity across generations.

Building on these foundational theories, this study employs the analytical lens of "media materiality" to explore more comprehensively the mediatory attributes of rivers in the interplay between nature and society. Recent years have seen the rise of the material turn in media studies, which has become a significant trend in communication and media research. Unlike traditional media studies, which often focus on semiotics and meaning-making, the material turn emphasizes the physical characteristics, technological forms, and tangible effects of media in the real world. In this study, "media materiality" highlights the importance of rivers' physical attributes, not only as the basis of their mediatory role but also as critical components of their communicative functions. This perspective considers rivers' physical characteristics—such as watershed distribution, water resource availability, and ecological impact—as central to shaping social relations and power structures within regions.

Viewing rivers as media facilitates a nuanced understanding of their complex roles in negotiating natural order and political boundaries. The material properties of rivers provide the foundation for natural order through their ecological functions and water resource distribution patterns. Simultaneously, these properties acquire symbolic significance by mediating power negotiations and geopolitical interactions between nations. The inherent logic of natural order is often subject to human intervention and reshaping, positioning rivers as unique sites where natural and political forces converge. In this dual capacity, rivers act both as physical mediators that divide spaces and as symbolic connectors that bridge societies and cultures.

Analyzing rivers as media reveals their capacity to reconcile the tensions between natural forces and political interests, offering a theoretical foundation for understanding their multifaceted roles in negotiating natural order and political boundaries. This perspective establishes a basis for subsequent analysis of rivers through the dimensions of nature, relations, and space, contributing to a deeper understanding of their pivotal role in constructing geopolitical and cultural spaces in border regions.

The Pulse of the Land: the Erguna and Irtysh Rivers

Every flowing river breathes life into the landscapes it traverses (Wang, 2022). As a "pulse of the land," rivers nourish human civilizations. The Erguna River flows through China's northeastern borderlands, originating from the western slope of the Greater Khingan Range. It courses through the Hailar River, eventually merging with the Shilka River in Russia before feeding into the Heilongjiang River. However, the Erguna River's genesis is not solely tied to the Greater Khingan. The Khurkh River, originating in the Khentii Mountains of Mongolia, flows into Hulun Lake, which further connects to the Erguna River through the Dalanolom River. Interestingly, since the 18th century, the outflow from Hulun Lake ceased, with the Hailar River periodically reversing its flow back into the lake before merging with the Erguna River (Baidu Baike, 2020). The eastern and northern sections of the Erguna River run along the northwest edges of the Greater Khingan Range, while the southern area transitions into the Hulunbuir Grassland. This transitional zone between forest and grassland supports both grazing and farming activities (Tang, 2011). The river's watershed is dotted with 303 tributaries, covering the Hulunbuir Grassland (Hulunbuir League Hydrology Records, 1992). In 1929, British anthropologist Lindeguer described the fertile triangle formed by the southern reaches of the Erguna River as "the most fertile land in all of Northwest Manchuria... its vast basin sustains prosperous agriculture, and the hillsides are carpeted with the grasses essential for livestock" (Lindeguer, 1991). The Erguna River is more than a natural watercourse; it is a historical river. Over the centuries, it has been known by various names, including Wangjian River in the Old Book of Tang, Anzhen River in the History of Liao, and Yeliguna River in the History of Yuan. Its current name, Erguna, has remained consistent since the Qing Dynasty (Liu, 2022). The river's enduring history has endowed the grasslands it nourishes with a wealth of natural resources, forming the cradle of grassland civilization. Following the end of the Pleistocene glacial period about 10,000 years ago, the Zhalainuoer people created the Zhalainuoer Culture along Hulun Lake, marking the origins of northern China's grassland civilizations.

The Irtysh River, the second-largest river in Xinjiang, originates in the Altai Mountains. It crosses the border into Kazakhstan before joining the Ob River in Russia and eventually emptying into the Arctic Ocean. There are 23 transboundary rivers shared between China and Kazakhstan, with the Irtysh and Ili Rivers being the most significant boundary rivers (Xu, 2022). The Irtysh River basin is expansive, with numerous right-bank trib-

utaries forming a typical comb-shaped hydrological system. Its scenic banks, complementing the golden Altai Mountains, have earned the river the moniker "Silver Waters." The river winds through China's western borderlands, sustaining life in arid desert regions, crossing into Kazakhstan and Russia, and linking Central and Northern Asia.

In northeastern China, the Erguna River delineates national borders through natural forces. On the Eurasian continent, the Irtysh River traverses China, Kazakhstan, and Russia, exerting its influence through the establishment of natural order. Rivers, through their interactions with humanity, have nurtured civilizations. However, this does not suggest that natural forces alone dictate everything. Humanity has imbued rivers with multi-dimensional meanings, engaging with them in diverse ways (Ge, 2021). Globally, many centers of knowledge, culture, and power have been shaped by rivers. For border rivers, the political and power implications are especially significant.

Crossing Through Rivers: National Boundaries and Power Struggles

Rivers can both define and cross international boundaries, compelling nation-states to cooperate while potentially triggering conflicts over water resources or territorial disputes (Galtung, 1982). This duality illustrates how rivers, beyond being physical geographical features, serve as instruments of power and objects of political contestation. Rivers delineate the boundaries of nations and shape their geographical forms, simultaneously revealing underlying political interests. Using rivers as borders reflects a natural geographical logic while also highlighting the hidden political agendas they embody. Globally, many nations use rivers and other natural geographical features as political boundaries. For instance, the Erguna River separates China's northeast from Russia's Far East. Similarly, the Rio Grande demarcates the United States and Mexico, the Yalu River separates China and North Korea, and the Oder River marks the border between Germany and Poland. In South America, the Uruguay River defines parts of the borders between Brazil, Argentina, and Uruguay. Within China, rivers and mountains frequently serve as provincial boundaries, such as the Qilian Mountains separating Gansu and Qinghai provinces and the Jinsha River marking the boundary between Sichuan and Tibet. Smith (2022) quantified the global phenomenon of rivers as political borders, identifying 219 pairs of countries, 2,267 pairs of states or provinces, and 13,674 pairs of counties or local districts that rely on rivers as boundaries. The advantage of using rivers as borders lies in their clear visual delineation. Before the advent of advanced geographic mapping technologies, rivers were often employed by colonial powers to demarcate and negotiate territories. This practice, deeply rooted in history, remains relevant in global geopolitics today. Rivers, as natural forces intertwined with human civilization, weave through cities and national boundaries, shaping and defining the contours of nations.

However, natural geography alone does not entirely determine borders or serve as an immutable cartographic guide. Politicians increasingly recognize the political leverage rivers offer, leading to disputes over control and utilization. In contemporary geopolitics, rivers frequently appear in territorial conflicts. Early discussions on transboundary river conflicts framed these issues within the lens of "resource conflicts" (Galtung, 1982). Scholars argued that the degree to which water resources are utilized significantly impacts a nation's socioeconomic development. As industrialization and population growth exacerbate water scarcity, fears of "water wars" have grown. Control over critical rivers has thus become a focal point in inter-state conflicts. Cross-border rivers in border regions add complexity to these disputes. On the one hand, shared water resources necessitate cooperation but can also lead to friction due to differing national interests. On the other hand, border regions often lag economically compared to central areas. In China, the influence of ethnic regional autonomy further complicates matters. Thus, studying cross-border river practices in these regions requires not only addressing inter-state relations and political implications but also considering the historical and sociocultural contexts of China's borderlands.

The Erguna River, marking the boundary between China and Russia, is located in China's northeastern frontier, outlining the crest of China's rooster-shaped map. The 1689 Treaty of Nerchinsk formally established the Erguna River as the boundary between China and Russia, stating, "The Erguna River flowing into the Heilongjiang River shall serve as the border: lands south of the river belong to China, while lands north belong to Russia" (Commercial Press, 1973, p. 1). However, this natural barrier did not prevent interactions between the two peoples. In 1727, during the reign of Emperor Yongzheng, the Qing government established 12 outposts along the river's Chinese side and repeatedly instructed local authorities in Hulunbuir to enhance border management and prevent Russian incursions (Baoyinchaoketu, 2005, p. 23). Despite these efforts, the river continued to attract conflict. In 1882, a member of the Oroqen ethnic group discovered substantial gold deposits near the river's estuary, drawing Russian miners. By 1884, the Russians had established a "Gold Mining Bureau" in the region, complete with districts, military forces, and administrative structures, effectively creating a self-contained authority (Erguna Banner Gazetteer Compilation Committee, 1993, pp. 262–263). These activities challenged Qing control over border resources, prompting the government to expel Russian miners. By the late 19th century, the political balance along the Erguna River began to shift toward Russia, exacerbated by events such as the Boxer Rebellion and subsequent Russian occupation of key outposts along

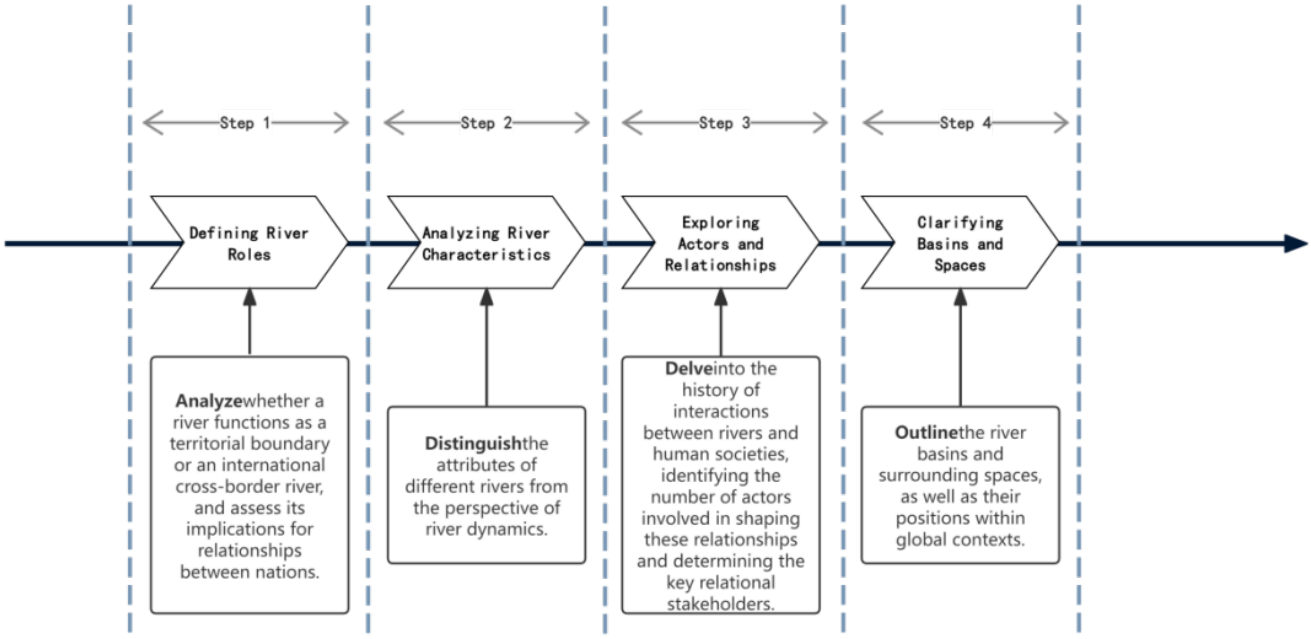

Figure 1 | the framework for comparative analysis of border rivers

the river in 1900. This history illustrates how the Erguna River has consistently been a focal point of political power struggles and territorial contestation.

In contrast, the Irtysh River, located in Xinjiang, is not a boundary river but a transcontinental waterway linking China, Kazakhstan, and Russia. The river's comb-like hydrological pattern connects diverse regions, providing a lens to study "water interactions," which encompass both water conflict and cooperation (Yang, 2021). The Irtysh River, shared by China and Kazakhstan, is a vital resource for both nations. While Kazakhstan, located downstream, fears the impact of China's water infrastructure projects on river flow, it also relies heavily on the Irtysh for its water-scarce regions. For China, the Irtysh River is the second-largest river in Xinjiang, crucial for regional socioeconomic development. Over the years, China and Kazakhstan have engaged in water-sharing agreements, including the establishment of a joint expert working group in 1998 and a bilateral cooperation framework in 2001. These efforts have positioned the Irtysh River as a model for transboundary river governance (Yan, 2019).

The contrasting roles of the Erguna and Irtysh Rivers underscore the multifaceted ways rivers shape national boundaries and political dynamics. While the Erguna River emphasizes the geopolitics of demarcation, the Irtysh River highlights the challenges and opportunities of transboundary cooperation.

'Division' and 'Cohesion': the Duality of River Genes

Drawing on the biological concept of "genes," British biologist Richard Dawkins introduced the term "meme" in The Selfish Gene (1976), suggesting that cultural evolution involves basic units similar to biological genes, which can be replicated, inherited, and influence the nature of culture (Wu, 2013). Similarly, "river genes" refer to the intrinsic characteristics of rivers that endure and shape their interaction with human societies.

On the one hand, rivers serve as natural barriers, dividing lands and demarcating boundaries between nations. On the other hand, the natural resources and navigational opportunities rivers offer have facilitated agriculture, industry, trade, and the exchange of civilizations. Rivers not only give rise to civilizations but also connect them. The duality of "division" and "cohesion" constitutes the essence of river genes.

However, which aspect of this duality predominates is not predetermined but instead depends on human activity. Rivers can be the focus of conflicts over water resources or control of shipping routes, or they can be the basis for treaties and cooperative agreements fostering mutual benefit and friendly exchanges. This dynamic implies that we should not impose preconceived roles or expectations on rivers, particularly those situated along borders. The historical entanglements and contemporary interactions among nations, the complex realities of China's border regions, and the blending of peoples and cultures provide unique analytical frameworks for each river. The Erguna River, a border river

between China and Russia, and the Irtysh River, a transboundary river linking China, Kazakhstan, and Russia, possess different characteristics due to their distinct types. A comparative analysis of these two rivers offers deeper insights into the intersections of rivers, civilizations, and power dynamics.

Cross-Border Rivers and Territorial Boundary Rivers: Contrasting Nature, Relations, and Spaces

Previous studies have primarily focused on rivers as a whole, examining their interactions with human civilization, or on specific cross-border river issues such as international cooperation, conflicts, or disputes. However, comparative studies on cross-border rivers and territorial boundary rivers within the same country remain scarce. The Erguna River and the Irtysh River, located in China's northeastern and northwestern borderlands respectively, offer ideal cases for such a comparison. Despite their shared frontier characteristics, the rivers differ in their roles and positions, providing a foundation to explore their distinctions and the complex relationships they represent. Specifically, natural factors largely determine a river's practical uses, while relational actors define their roles through specific practices, resulting in distinct spatial characteristics. Figure 1 illustrates the framework for comparing border rivers.

Natural Foundations: Hydrological Differences Between Inland and Outflowing Rivers

Inland rivers flow into lakes or disappear inland without reaching the sea. Historically, the Erguna River was an inland river during the Mongol Empire, later becoming a boundary river between China and Russia following the Treaty of Nerchinsk. Today, the Erguna River converges with Russia's Shilka River before flowing into the Heilongjiang River and eventually reaching the Sea of Okhotsk. Due to its geographic environment, the Erguna River lacks substantial hydraulic potential, meandering gently. The President of the China Mongolian Literature Society, Uliji, described the Erguna River in his work Erguna River Journey: "When we sailed to the confluence of the Enhehada River and the Erguna River, we witnessed the gentle rhythmic waves caressing the shore, their confluence stirring white ripples that delighted the senses" (Uliji, 2018). At its source, the Erguna River connects with the Dalan-Olom River and Russia's Munniatu River, forming a transnational wetland. The Erguna Wetlands Park, located at the river's headwaters, offers a picturesque landscape of meandering streams and lively birds.

Outflowing rivers, in contrast, flow directly or indirectly into the sea. The Irtysh River originates in Xinjiang, exits China, flows through Kazakhstan and Russia, and eventually empties into the Arctic Ocean. It is China's only river draining into the Arctic. The upper reaches of the Irtysh are replenished by melting snow, ice, and precipitation, boasting abundant water flow and concentrated elevation drops. With an annual runoff of 11.1 billion cubic meters, it holds rich hydropower resources. This robust hydraulic force also supports infrastructure like the Irtysh-Karaganda Canal and urban water supply systems (Baidu Baike, 2023). Furthermore, the Irtysh River is a shared transnational river among China, Kazakhstan, and Russia. Spanning 4,235 kilometers, with 525 kilometers in China, 1,700 kilometers in Kazakhstan, and 2,010 kilometers in Russia, its basin covers 1.643 million square kilometers, enabling extensive international navigation. The river's strategic location at the Arctic Ocean's edge further facilitates multidimensional development. Some scholars regard the Irtysh-Ob River corridor as a potential pathway for Eurasian integration. Given its unique geographic position, the Irtysh connects Central Asia to the Arctic region while linking South Asia via roads, railways, and even pipelines, thereby vertically integrating the Eurasian continent (Mei & Guo, 2017). Consequently, China, Kazakhstan, and Russia have collaborated and negotiated over its management and utilization.

From a geographical perspective, identifying the Erguna as an inland river and the Irtysh as an outflowing river provides a basis for analyzing the practices and relational structures surrounding these rivers. Their differing geographic locations, trajectories, and hydrological characteristics highlight their distinctions despite shared border attributes. Clarifying these differences not only enriches our understanding of rivers but also informs potential future interactions between these rivers and human societies.

Relational Actors: National Governments and Integrated Ethnic Communities

Rivers do not interact abstractly with human societies. The geographical locations, characteristics of rivers, and historical practices significantly influence the relational actors involved and their choices concerning political considerations and cultural integration. Generally, the Irtysh River is centered around national governments, focusing on cooperation in water resources and socio-economic development. In contrast, the Erguna River emphasizes integrated ethnic communities, fostering water culture and ethnic integration.

Since Kazakhstan's independence, China and Kazakhstan have initiated cross-border river cooperation, including on the Irtysh River. In 1998, the two governments established the China-Kazakhstan Joint Working Group on Cross-Border Rivers. The 2001 Agreement on the Use and Protection of Transboundary Rivers, signed between China and Kazakhstan, marked the first formal collaboration between the two nations (Yan, 2019). Subsequently, the two countries have achieved substantial progress in water quality monitoring, joint water infrastructure projects, and water resource sharing. Under the auspices of this joint committee, the ecological protection of the Irtysh River has become a

model for transboundary river management in Central Asia (Yan, 2019). The political activities led by national governments provide long-term, systematic, and stable support for water cooperation on the Irtysh River. In particular, the increasing integration of the Belt and Road Initiative (BRI) has brought the Irtysh River basin into focus as a sub-regional connection between China, Kazakhstan, and Russia. The Irtysh-Ob River corridor connects the Silk Road Economic Belt, the Polar Silk Road, and the Yamalo-Nenets Peninsula, laying a foundation for extensive international cooperation (Mei & Guo, 2017). In September 2021, Kazakhstan's ambassador to China, Gabit Koishybayev, called for a bilateral agreement on shared water resources in light of climate challenges, stating, "China's hydrological policies in Xinjiang Uygur Autonomous Region will not only determine its regional status but also affect Kazakhstan's ecological systems" (Sputnik News, 2021). However, while rivers connect the two nations, they also pose potential crises and conflicts. The positions of upstream and downstream countries are inherently unequal, carrying significant implications for sovereignty. Kazakhstan, located downstream on the Irtysh River, has expressed concerns about China's utilization of water resources. In a water-scarce Kazakhstan, China's exploitation of the Irtysh River could lead to potential water conflicts. Globally, such disputes are not new. In 1895, Mexico filed an urgent complaint with the U.S. Department of State regarding the Rio Grande water diversion project. The U.S., citing absolute sovereignty over domestic rivers, refused, resulting in the "Harmon Doctrine." While this doctrine highlights the vulnerability of downstream nations, it also led to the 1907 agreement between Mexico and the U.S., setting a precedent for transboundary river management (Galtung, 1982). These historical lessons inform ongoing bilateral cooperation between China, Kazakhstan, and Russia on the Irtysh River. Despite existing collaboration, a stable trilateral cooperation framework has yet to be established.

In contrast, ethnic communities dominate the relational framework of the Erguna River in China's northeastern borderland. During the 19th-century gold rush along the Erguna River, a significant influx of laborers migrated to the region, and the Russian Empire implemented a "Russification of the Frontier" policy by relocating large numbers of Russians to Siberia and the Far East. This process led to intermarriage between Chinese and Russian populations. The Qing official Zhao Chunfang noted in his Report on Border Affairs of the Zhuergan River General Kulan, "First, they built friendships; then, they built marriages. Along the border, many Chinese have cut their hair, changed their clothes, and married Russians" (Zhao, 1911). Such long-term intermarriages have established cultural villages, serving as active sites of exchange and interaction along the Erguna River. In 1994, the E'nhuo Russian Ethnic Township was established in Erguna City, and in 2001, the Inner Mongolia Autonomous Region merged the original Shiwuer and E'nhuo Russian Ethnic Townships into the Shiwuer Russian Ethnic Township. Within these communities, Chinese and Russian cultures collide and blend, manifesting in music, architecture, religion, and burial customs. Human-mediated exchanges along the Erguna River have thus created a unique cultural landscape along its banks.

While the Erguna River, as a territorial boundary, and the Irtysh River, as a transboundary waterway, differ significantly in relational actors, this does not preclude Sino-Russian cooperation on the Erguna River or interpersonal exchanges in the Irtysh basin. Instead, their distinctions reflect their respective priorities and orientations in spatial construction.

Spatial Construction: Global Geopolitical Divisions and the Formation of the Erguna Cultural Border Area

The differing interactions of relational actors shape the spaces constructed around the Erguna and Irtysh Rivers. The Irtysh River influences not only China's relationships with Kazakhstan and Russia but also the broader geopolitical configuration of Central and Northern Asia. For Russia, the Irtysh-Ob River corridor presents an opportunity to reassert dominance in Central Asia. The Eurasian Economic Union (EAEU), led by Russia, lacks vertical integration mechanisms, but the Irtysh-Ob River could enhance Russia's presence in Central Asia and extend its influence into South Asia (Mei & Guo, 2017). For China, the Irtysh River offers a low-cost, efficient export channel for Xinjiang, connecting the region to European markets via the Arctic route. Kazakhstan relies on the Irtysh River as a critical freshwater resource. Plans by Russia and Kazakhstan to develop Irtysh River navigation further underscore its strategic importance (Mei & Guo, 2017). Globally, the Irtysh-Ob River corridor impacts the strategies of nations like India and the U.S. As India strengthens ties with Central Asia, the corridor facilitates low-cost access to Arctic oil and gas from Russia, enhancing India's regional influence. Conversely, this could prompt the U.S. to recalibrate its Asian strategy in response to India's growing presence (Mei & Guo, 2017). Thus, the Irtysh River's geopolitical significance extends beyond the interests of its riparian states.

In contrast, the Erguna River basin has given rise to the Erguna cultural border area. The concept of a "cultural area" was first proposed by Franz Boas, and subsequent anthropologists expanded this into the concept of a "cultural border area" as opposed to a "cultural center" (Boas, 1938). The Russian Ethnic Township embodies this cultural border area. As a Sino-Russian cultural space, the township integrates Russian Orthodox traditions, classic log cabins, and hybrid funeral customs, illustrating the fusion of Russian and Chinese cultural "genes." This fusion stems from shared historical logic and civilizational roots between Russia and

China. The Erguna River's stable natural landscape ensures the horizontal transmission of cultural memory across time and facilitates the intergenerational preservation of mixed Sino-Russian traditions (Dai, Huang & Sun, 2023). Through the activation of cultural genes and the sharing of collective memory, the Erguna cultural border area has emerged as a vital bridge for Sino-Russian civilizational exchange.

Conclusion: Rivers as Forces of Power

Rivers have shaped themselves and human civilizations through their interactions with humanity. A world without rivers would be unimaginable. Rivers have fostered early human societies and driven the development of cities, trade, ruling classes, and political systems (Smith, 2022). Their strength and resilience have enabled them to traverse diverse societies throughout history, continually flowing forward. Building on foundational communication theories, this study has framed rivers as media, emphasizing their materiality and symbolic significance in negotiating natural order and political boundaries. The document analysis and case analysis methods have been employed to examine the Erguna and Irtysh Rivers as representative cases, demonstrating how variations in natural characteristics and stakeholder dynamics lead to distinct spatial and geopolitical outcomes.

The Erguna River in northeastern China and the Irtysh River in Xinjiang, spanning east and west, forge meaningful connections and shared spaces between China and its neighbors. Viewing rivers as media prompts exploration of their mediatory role in shaping relationships between rivers and human civilizations. As border rivers, the Erguna and Irtysh Rivers symbolize the interplay between natural order and political boundaries. However, variations in their natural characteristics and involved stakeholders have resulted in distinct spatial dynamics. This paper attempts to construct a preliminary framework for comparative analysis of border rivers. First, it is essential to define the roles of rivers, determining whether they function as territorial boundaries or international cross-border rivers, and evaluating their inter-nation relationships. Second, the characteristics of rivers should be analyzed from the perspective of river dynamics. Third, it is crucial to explore the actors and relationships involved, examining historical interactions between rivers and human societies, identifying the participating actors, and determining key stakeholders. Finally, clarifying river basins and spaces involves mapping their extents, surrounding areas, and positions within the global context. Rivers are not static; as civilizations and technologies evolve, their associated resources and power dynamics reveal new spatial understandings.

Rivers derive power from both their continuity and their creative influence. Our perspective on border rivers mirrors our approach to relationships with neighboring countries. Viewing rivers as media also entails recognizing them as pathways. Cooperation between China and its neighbors on cross-border rivers offers a new starting point, encompassing shared development and protection of water resources, along with the circulation of trade, transportation, energy, and other resources. At this level, cross-border rivers and their resources may function as hidden undercurrents in global geopolitics. Therefore, cross-border rivers in border areas should be central to China's strategies, such as the Belt and Road Initiative and the "Ice Silk Road." Rivers, akin to arteries, are immense forces silently sustaining surrounding systems. As Smith (2022) notes in Rivers: A History of Civilization: 'Today, rivers have been increasingly tamed, bound in chains, yet they remain that ancient force, continuing to govern the lives of us all.'

1. Hu, Y. (2019). How to Understand Media in the Era of Intelligent Media: Fragmented Dialogues with McLuhan. Journalism Review, 9, pp. 11–16. doi:10.15897/j.cnki.cn51-1046/g2.2019.09.003.
2. Smith, L.C. (2022). Rivers: A History of Civilization. Beijing: CITIC Press.
3. Yan, X. (2019). Building the China-Russia-Kazakhstan Irtysh-Ob River Cooperation Mechanism under the Context of the "Ice Silk Road". In Annual Report on Arctic Development 2018. Beijing: Social Sciences Academic Press.
4. Baidu Baike (2020). Secrets of the Erguna River. Available at: https://baike.baidu.com/tashuo/browse/content?id=03557a8fee4c289226d3e4da
5. Ge, J. (2021). Rivers and Human Civilization. Folklore Studies, 6, pp. 5–13, 158. doi:10.13370/j.cnki.fs.2021.06.002.
6. Hulunbuir League Hydrology Records (1992). FZ005857. Available at: https://fz.wanfangdata.com.cn/details/newLocalchronicle.do?Id=FZ005857
7. Lindeguer, R. (1991). Northwest Manchuria and the Reindeer Tungus. In W. Wu (ed.), Heilongjiang Archaeological and Ethnological Materials, Vol. 1. Heilongjiang Provincial Museum.
8. Liu, X. (2022). Exploring the Origins of the Erguna River. China Three Gorges, 5, pp. 22–31.
9. Ma, D. (2017). Governance of China's Borderlands: From History to Reality. Thinking Front, 4, pp. 56–66.
10. Tang, G. (2011). Erguna: A New Cultural Borderland. Russian Studies Journal, 4, pp. 61–71.
11. Wang, F. (2022). The Right Bank of the Erguna River. China Three Gorges, 5, pp. 18–21, 6.
12. Xu, X. (2022). Water Resource Cooperation Between China and Kazakhstan: Achievements and Issues. Siberian Studies, 3, pp. 93–103.
13. Baoyinchaoketu (2005). A Study of Outposts in Qing Northern Borderlands. Beijing: Renmin University Press, p. 23.
14. Commercial Press (1973). Collection of Sino-Russian Border Treaties. Beijing: Commercial Press, p. 1.
15. Erguna Banner Gazetteer Compilation Committee (1993). Gazetteer of Erguna Right Banner. Inner Mongolia Cultural Publishing House, pp. 262–263.
16. Galtung, J. (1982). Environment, Development, and Military Activity: Towards Alternative Security Doctrines. Universitetsforlaget, Columbia University Press.
17. Smith, L.C. (2022). Rivers: A History of Civilization. Beijing: CITIC Press.
18. Yang, Y. (2021). A Comparative Study of Cross-Border Water Interactions between China and Neighboring Countries (Master's thesis). East China University of Political Science and Law.

Available at: https://kns.cnki.net/kcms2/article/abstract.
19. Yan, X. (2019). Building the China-Russia-Kazakhstan Irtysh-Ob River Cooperation Mechanism under the Context of the "Ice Silk Road". In Annual Report on Arctic Development 2018. Beijing: Social Sciences Academic Press.
20. Dawkins, R. (1976). The Selfish Gene. Oxford: Oxford University Press.
21. Wu, Q. (2013). A New Interpretation of Cultural Genes: A Possible Path for Cultural Anthropology. Ethnic Studies, (6), pp. 5–10.
22. Baidu Baike (2023). Irtysh River. Available at: https://baike.baidu.com/item/额尔齐斯河 (Accessed: 4 December 2024).
23. Mei, C. and Guo, P. (2017). Irtysh-Ob: A Path for Eurasian Integration. World Knowledge, 1, pp. 38–39, 42.
24. Boas, F. (1938). The Mind of Primitive Man. New York: Macmillan.
25. Dai, J., Huang, X., & Sun, J. (2023). Theoretical Paradigms of Natural Landscapes as Catalysts for Cultural Identity: A Case Study of the Yellow River National Cultural Park. Folklore Studies, 2, pp. 5–10. doi:10.13370/j.cnki.fs.2023.02.002.
26. Galtung, J. (1982). Environment, Development, and Military Activity: Towards Alternative Security Doctrines. New York: Columbia University Press.
27. Mei, C. & Guo, P. (2017). Irtysh-Ob River: A Pathway for Eurasian Integration. World Knowledge, 1, pp. 38–42.
28. Sputnik News (2021). Kazakhstan Urges China to Sign Bilateral Water Sharing Agreement amid Climate Challenges. Available at: https://sputniknews.cn.
29. Yan, X. (2019). Building the China-Russia-Kazakhstan Irtysh-Ob River Cooperation Mechanism under the Context of the "Ice Silk Road". In Annual Report on Arctic Development 2018. Beijing: Social Sciences Academic Press.
30. McLuhan, M. (1994). Understanding media: The extensions of man. MIT press.
31. Innis, H. A. (1999). The bias of communication. University of Toronto Press.
32. Bowen, G. A. (2009). Document analysis as a qualitative research method. Qualitative research journal, 9(2), 27-40.
33. Harrison, H., Birks, M., Franklin, R., & Mills, J. (2017, January). Case study research: Foundations and methodological orientations. In Forum qualitative Sozialforschung/Forum: qualitative social research (Vol. 18, No. 1).